

# Exhibit A

United States' Email Response to Plaintiffs  
Providing a Description of Responsive Data and  
Studies Produced (September 29, 2020)

**From:** [Tardiff, Kristine \(USANH\)](#)  
**To:** [Daniel Charest](#); [Charles Irvine](#); [Armistead Easterby](#); [Vuk Vujasinovic](#); [Larry Vincent](#)  
**Cc:** [Andrew Bynum](#); [Kristin Hummel, CP](#) ([khummel@whlaw.com](mailto:khummel@whlaw.com)); [Patti Artavia](#); [Job Tenant](#); [Duncan, Laura \(ENRD\)](#); [Izfar, Sarah \(ENRD\)](#); [Morris, Frances \(ENRD\)](#); [Formanek, Anne \(ENRD\)](#)  
**Subject:** RE: Harvey Upstream - Deposition Scheduling  
**Date:** Tuesday, September 29, 2020 3:18:41 PM

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All,

As a follow-up to our conversation yesterday regarding what, if any, responsive data and studies have been produced and what have been withheld, here are some more definitive descriptions.

- You asked yesterday about real estate cost estimates or appraisals. We have produced two real estate cost estimates—one by Tom Seymour in 2018 and one by Jeremy Creech in 2020, as well as the underlying valuation data. As noted yesterday, the documents and data from Mr. Creech was included in our production of August 21, 2020. At your request, we provided a deposition date for Mr. Creech of October 23, and we have reserved that date on our calendars pending confirmation from you. We have not identified any other appraisals or valuations or cost estimates. We note that additional valuation work may be done in connection with future phases of the Resiliency Study. As indicated on our deliberative process log, what has been withheld is the draft appendix report on real estate and prior drafts of that, which discuss and compare alternatives in more detail than the Interim Report will.
- You also asked yesterday about Hydrology and Hydraulics (H&H) analysis, and specifically PMF load curves. We have produced all of the preliminary Hydrology and Hydraulics (H&H) modeling from the BBTRS and results that supports the existing conditions of the Project in the Interim Report. This includes the following:
  - 1D2D\_FRM\_RAS\_Draft\_Mar2020.zip (USACEII01888884)
  - 2D\_PMF\_RAS\_Draft\_Mar2020.zip (USACEII01888885)
  - HEC-WAT-v1.1.0.114\_Software.zip (USACEII01888886)
  - HMS\_Draft\_Mar2020.zip (USACEII01888887)
  - Hydrologic Loading\_Draft\_Mar2020.zip (USACEII01888888)
  - WAT\_Draft\_Mar2020.zip (USACEII01888889)
- Additionally, we have produced the PMP analysis (included in production on 9/10 and 9/11/2020); Depth Grids showing inundation during various types of hypothetical future storms (see zip file of native data labeled for identification as USACEII01888741); and we are in the process of producing some map-related files that support the Interim Report. Though the Resiliency Study process, including modeling and analysis, is ongoing, we have provided the version of the models that support the Interim Report analysis because that is a reasonable, discrete point in time that is tethered to a soon-to-be publicly available analysis of existing conditions at the project. The H&H modeling collected and produced in response to Plaintiffs' document production requests and the Court's ruling does not include modeling related to alternatives analysis. As indicated on our deliberative process log, we are also withholding the draft appendix reports on the H&H topics as well as prior drafts of those reports, which discuss and compare alternatives in more detail than the Interim Report will.
- We are in the process of producing the preliminary economics data that relates to the existing conditions of the Interim Report. This will include information like frequency damage curves based on various hypothetical storm flood depths, and a damages analysis for the without project condition that is an input to cost benefit ratio analyses. Another aspect of the economics analysis regarding lost lives was not responsive to the discovery requests and the Court's discovery ruling. As indicated on our deliberative process log, we have withheld a draft appendix report on economics and prior drafts of that, which discuss and compare alternatives in more details than the Interim Report will.

We trust that this answers some of the questions you had about production and will assist in your

review of that production.

Kris

Kristine S. Tardiff

Senior Trial Attorney

U.S. Department of Justice

Environment & Natural Resources Division

Natural Resources Section

Office 603-230-2583

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[kristine.tardiff@usdoj.gov](mailto:kristine.tardiff@usdoj.gov)

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**From:** Daniel Charest <[dcharest@burnscharest.com](mailto:dcharest@burnscharest.com)>

**Sent:** Tuesday, September 29, 2020 2:41 PM

**To:** Tardiff, Kristine (USANH) <[KTardiff@usa.doj.gov](mailto:KTardiff@usa.doj.gov)>; Charles Irvine <[charles@irvineconner.com](mailto:charles@irvineconner.com)>; Armistead Easterby <[aeasterby@whlaw.com](mailto:aeasterby@whlaw.com)>; Vuk Vujasinovic <[vuk@vbattorneys.com](mailto:vuk@vbattorneys.com)>; Larry Vincent <[lvincent@burnscharest.com](mailto:lvincent@burnscharest.com)>

**Cc:** Andrew Bynum <[abynum@burnscharest.com](mailto:abynum@burnscharest.com)>; Kristin Hummel, CP ([khummel@whlaw.com](mailto:khummel@whlaw.com)) <[khummel@whlaw.com](mailto:khummel@whlaw.com)>; Patti Artavia <[Patti@vbattorneys.com](mailto:Patti@vbattorneys.com)>; Job Tenant <[Job@vbattorneys.com](mailto:Job@vbattorneys.com)>; Duncan, Laura (ENRD) <[LDDuncan@ENRD.USDOJ.GOV](mailto:LDDuncan@ENRD.USDOJ.GOV)>; Izfar, Sarah (ENRD) <[SIzfar@ENRD.USDOJ.GOV](mailto:SIzfar@ENRD.USDOJ.GOV)>; Morris, Frances (ENRD) <[FMorris@ENRD.USDOJ.GOV](mailto:FMorris@ENRD.USDOJ.GOV)>; Formanek, Anne (ENRD) <[AFormanek@ENRD.USDOJ.GOV](mailto:AFormanek@ENRD.USDOJ.GOV)>

**Subject:** Re: Harvey Upstream - Deposition Scheduling

Yes for me. Thanks.

Assuming the time works (and let's plan for that unless we pick a different time), we can use the same number: 214-617-2029.

**Daniel H. Charest**

469.904.4555 direct

214.681.8444 mobile

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**From:** Kristine Tardiff <[Kristine.Tardiff@usdoj.gov](mailto:Kristine.Tardiff@usdoj.gov)>

**Date:** Tuesday, September 29, 2020 at 12:49 PM

**To:** Daniel Charest <[dcharest@burnscharest.com](mailto:dcharest@burnscharest.com)>, Charles Irvine <[charles@irvineconner.com](mailto:charles@irvineconner.com)>, "E. Armistead "Armi" Easterby" <[aeasterby@whlaw.com](mailto:aeasterby@whlaw.com)>, Vuk Vujasinovic <[vuk@vbattorneys.com](mailto:vuk@vbattorneys.com)>, Larry Vincent <[lvincent@burnscharest.com](mailto:lvincent@burnscharest.com)>

**Cc:** Andrew Bynum <[abynum@burnscharest.com](mailto:abynum@burnscharest.com)>, "Kristin Hummel, CP ([khummel@whlaw.com](mailto:khummel@whlaw.com))" <[khummel@whlaw.com](mailto:khummel@whlaw.com)>, Patti Artavia <[Patti@vbattorneys.com](mailto:Patti@vbattorneys.com)>, Job Tenant <[Job@vbattorneys.com](mailto:Job@vbattorneys.com)>, Laura Duncan <[Laura.Duncan@usdoj.gov](mailto:Laura.Duncan@usdoj.gov)>, Sarah Izfar <[Sarah.Izfar@usdoj.gov](mailto:Sarah.Izfar@usdoj.gov)>, Frances Morris <[Frances.Morris@usdoj.gov](mailto:Frances.Morris@usdoj.gov)>, Anne Formanek <[Anne.Formanek@usdoj.gov](mailto:Anne.Formanek@usdoj.gov)>

**Subject:** RE: Harvey Upstream - Deposition Scheduling

Dan – We are available to regroup from 3:30 to 4:30 central time today. Does that work on your end?

Kris

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**From:** Daniel Charest <[dcharest@burnscharest.com](mailto:dcharest@burnscharest.com)>

**Sent:** Monday, September 28, 2020 6:02 PM

**To:** Tardiff, Kristine (USANH) <[KTardiff@usa.doj.gov](mailto:KTardiff@usa.doj.gov)>; Charles Irvine <[charles@irvineconner.com](mailto:charles@irvineconner.com)>;

Armistead Easterby <[aeasterby@whlaw.com](mailto:aeasterby@whlaw.com)>; Vuk Vujasinovic <[vuk@vbattorneys.com](mailto:vuk@vbattorneys.com)>; Larry Vincent <[lvincent@burnscharest.com](mailto:lvincent@burnscharest.com)>

**Cc:** Andrew Bynum <[abynum@burnscharest.com](mailto:abynum@burnscharest.com)>; Kristin Hummel, CP ([khummel@whlaw.com](mailto:khummel@whlaw.com)) <[khummel@whlaw.com](mailto:khummel@whlaw.com)>; Patti Artavia <[Patti@vbattorneys.com](mailto:Patti@vbattorneys.com)>; Job Tenant <[Job@vbattorneys.com](mailto:Job@vbattorneys.com)>; Duncan, Laura (ENRD) <[LDuncan@ENRD.USDOJ.GOV](mailto:LDuncan@ENRD.USDOJ.GOV)>; Izfar, Sarah (ENRD) <[SIzfar@ENRD.USDOJ.GOV](mailto:SIzfar@ENRD.USDOJ.GOV)>; Morris, Frances (ENRD) <[FMorris@ENRD.USDOJ.GOV](mailto:FMorris@ENRD.USDOJ.GOV)>; Formanek, Anne (ENRD) <[AFormanek@ENRD.USDOJ.GOV](mailto:AFormanek@ENRD.USDOJ.GOV)>

**Subject:** Re: Harvey Upstream - Deposition Scheduling

Thanks for the discussion, Kris. When can we talk tomorrow? For my part, any time other than 1100-1400 central works. And we think it would be **very helpful** to have the USACE in-house lawyer on the line, so we can get a clearer picture of the structure of documents and reports. Thanks.

**Daniel H. Charest**

469.904.4555 direct  
214.681.8444 mobile

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**From:** Kristine Tardiff <[Kristine.Tardiff@usdoj.gov](mailto:Kristine.Tardiff@usdoj.gov)>

**Date:** Friday, September 25, 2020 at 1:15 PM

**To:** Charles Irvine <[charles@irvineconner.com](mailto:charles@irvineconner.com)>, Daniel Charest <[dcharest@burnscharest.com](mailto:dcharest@burnscharest.com)>, "E. Armistead "Armi" Easterby" <[aeasterby@whlaw.com](mailto:aeasterby@whlaw.com)>, Vuk Vujasinovic <[vuk@vbattorneys.com](mailto:vuk@vbattorneys.com)>, Larry Vincent <[lvincent@burnscharest.com](mailto:lvincent@burnscharest.com)>

**Cc:** Andrew Bynum <[abynum@burnscharest.com](mailto:abynum@burnscharest.com)>, "Kristin Hummel, CP ([khummel@whlaw.com](mailto:khummel@whlaw.com))" <[khummel@whlaw.com](mailto:khummel@whlaw.com)>, Patti Artavia <[Patti@vbattorneys.com](mailto:Patti@vbattorneys.com)>, Job Tenant <[Job@vbattorneys.com](mailto:Job@vbattorneys.com)>, Laura Duncan <[Laura.Duncan@usdoj.gov](mailto:Laura.Duncan@usdoj.gov)>, Sarah Izfar <[Sarah.Izfar@usdoj.gov](mailto:Sarah.Izfar@usdoj.gov)>, Frances Morris <[Frances.Morris@usdoj.gov](mailto:Frances.Morris@usdoj.gov)>, Anne Formanek <[Anne.Formanek@usdoj.gov](mailto:Anne.Formanek@usdoj.gov)>

**Subject:** Harvey Upstream - Deposition Scheduling

All -

We were finishing up this email when Dan's email arrived. This addresses the outstanding deposition scheduling issues.

Below is schedule for the next month with deposition dates you've provided us for the Plaintiffs thus far, and dates for the government employees you have asked to depose.

For the plaintiffs, we have the following scheduling issues that we need to sort out with you:

- Christina Micu – We have a conflict on our end for 10/16 and have an outstanding request as to whether Ms. Micu could be available on either 10/13 or 10/16.
- Catherine Popovici – We have a conflicting federal district court hearing that has been scheduled on 10/9. There is a possibility that the hearing will be continued, but we would like to look at some additional dates given that current conflict. Can you inquire about her availability on Monday 10/19 or Monday 10/26?
- The Bankers – We asked for dates of availability for the Bankers along with the other plaintiffs in our email of *September 10*. We are still waiting for your response on the Bankers' availability for deposition. Given the schedule below, we may need to consider doubling up on scheduled depositions during the weeks of October 12 or 19. We can also look at dates later in October by agreement.

- We will send deposition notices today for Mr. Sidhu and Ms. Burnham for the dates agreed to, as listed below.

For the Corps employees, you provided us with a list of Corps employees for which you wanted to schedule depositions on Monday, 9/21, and yesterday you also asked for dates of availability for Michael Kauffman. We are still working on determining the availability of Thomas Seymour. For the rest of the Corps employees on your list, we have provided a date for each employee below, with a full day reserved for each deponent per your request.

For FEMA employees, I am sending a separate response to Armi's email of 9/24.

With respect to the scheduling of a Rule 30(b)(6) deposition, we are awaiting a response to our last letter to you on this subject sent on September 16, which follows up on our correspondence from August 3. Both are attached for reference. Dan's email of today states that “[t]he parties plainly have a difference of opinion on the Court's ruling on the government's motion to quash.” The intent of our prior correspondence was to initiate discussions with you as to *where* the areas of disagreement are so that we can assess whether we need to seek clarification from the Court on any issues prior to this deposition. You have our position detailed in the letters, but we do not have any specific response from you. We agree that a call early next week in advance of the call with Judge Lettow so that you can provide us with your position on a topic-by-topic basis would be helpful. We would suggest a call on Monday afternoon at 2pm Central/3pm Eastern. Our availability on Tuesday depends on whether you are moving forward with Ron Wanhanen's deposition.

Finally, we note that RCFC 30(a)(2) provides a presumptive limit of 10 depositions absent stipulation by the parties or approval of the Court. Given that the case has been bifurcated, we interpret this rule to allow each side 10 depositions during the just compensation phase. At this juncture, the depositions taken or requested by Plaintiffs of employees from various federal agencies already exceeds this limit. Should Plaintiffs' list of requested deponents continue to grow, this is an issue that the parties will need to discuss and perhaps raise with the Court.

#### Harvey Upstream Depositions – Proposed Scheduling

##### **Week of September 28-October 2**

Tuesday 9/29 Ronald Wanhanen (FEMA) – date has been held; no notice issued

Thursday 10/1 Status Conference with Judge Lettow

##### **Week of October 5-9**

Tuesday 10/6 Robert Thomas (continuation of prior deposition) (alternate date 10/13)

Thursday 10/8 Sidhu deposition

Friday 10/9 Popovici deposition (*tentative; may need to be rescheduled*)

##### **Week of October 12-16**

Monday 10/12 Columbus Day (Federal Holiday)

Tuesday 10/13 Tim Nelson (Corps) deposition / *Micu rescheduling?*

Wednesday 10/14 Burnham deposition

Thursday 10/15 Larry Ward (IRS) available (am only) (Tardiff unavailable after 1 pm eastern)

Friday 10/16 Hold for Larry Ward (IRS) deposition

**Week of October 19–23**

Monday 10/19 *Micu rescheduling?/ Andrew Weber (availability subject to jury summons)*

Tuesday 10/20 Matt Masek (Corps) or Andrew Weber alternate date (availability subject to jury summons)

Wed. 10/21 Michael Kauffman (Corps)

Thurs. 10/22 Brian Breaker (Corps)

Friday 10/23 Jeremy Creech (Corps)

**Week of October 26-30**

Monday 10/26 Susan Seymour (Corps)

We are available to participate on a call next week to firm up this schedule so that depositions notices can be sent out. We can either do that in conjunction with a call on the Rule 30(b)(6) issues, or schedule a separate call.

Thank you,

Kris

Kristine S. Tardiff

Senior Trial Attorney

U.S. Department of Justice

Environment & Natural Resources Division

Natural Resources Section

Office 603-230-2583

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[kristine.tardiff@usdoj.gov](mailto:kristine.tardiff@usdoj.gov)

# Exhibit B

United States' Email to Plaintiffs  
Producing the Publicly Released Interim  
Feasibility Report for the Resiliency Study  
(October 1, 2020)

**From:** [Tardiff, Kristine \(USANH\)](#)  
**To:** [Mr. Daniel Charest](#); [Armi Easterby](#); [Mr. Charles Irvine](#); [Larry Vincent](#); [Mr. Vuk Stevan Vujasinovic](#)  
**Cc:** [Formanek, Anne \(ENRD\)](#); [Duncan, Laura \(ENRD\)](#); [Izfar, Sarah \(ENRD\)](#); [Morris, Frances \(ENRD\)](#); [Andrew Bynum](#); [Kristin Hummel, CP](#) ([khummel@whlaw.com](mailto:khummel@whlaw.com)); [Job Tenant](#); [Patti Artavia](#) ([patti@vbattorneys.com](mailto:patti@vbattorneys.com))  
**Subject:** Harvey Upstream - Confidential Copy of BBTRS Interim Feasibility Report  
**Date:** Thursday, October 1, 2020 12:00:02 PM  
**Attachments:** [BBTrT\\_Interim\\_Report\\_202001001\\_Final-CONFIDENTIAL.pdf](#)

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Counsel – Attached please find a copy of the BBTRS Interim Feasibility Report that we received from the Corps today. It has been stamped as Confidential under the protective order in this case pending public release of the report.

We are processing the attached document and will produce a bates-stamped copy for your discovery records as soon as it is available. In addition, as soon as the Corps releases the Interim Feasibility Report, we will bates-stamp and produce that copy without the Confidential stamp on it.

Kris

Kristine S. Tardiff  
Senior Trial Attorney  
U.S. Department of Justice  
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# Exhibit C

Emails Between United States and Plaintiffs  
Regarding LifeSim Modeling

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**From:** [Tardiff, Kristine \(USANH\)](#)  
**To:** [Charles Irvine](#)  
**Cc:** [Duncan, Laura \(ENRD\)](#); [Morris, Frances \(ENRD\)](#); [Daniel H. Charest](#); [Armi Easterby](#); [Larry Vincent](#); [Vuk Vujasinovic](#); [Andrew Bynum](#); [Kristin Hummel](#); [Job Tenant](#); [Patti Artavia \(patti@vbattorneys.com\)](#); [Formanek, Anne \(ENRD\)](#)  
**Subject:** RE: Redactions in production of BBTRS documents  
**Date:** Friday, March 19, 2021 3:22:15 PM

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Counsel,

We need to clarify two items from our response on Monday.

Aside from the dam breach scenarios, Life-Sim was run to compare life risk estimates for selected flood risk management alternatives as described in the BBTRS Interim Report, such as in Section 4.13. That clarification does not change our position that your request for the Life-Sim modeling used for the BBTRS Interim Report is not responsive to RFP 38, 58 or 61 for the reasons stated in our letter.

Additionally, the Life-Sim modeling for the BBTRS Interim Report used a structure inventory called the National Structure Inventory (“NSI”) as opposed to the previously produced county structure inventories. We are seeking confirmation as to whether the NSI was included in prior productions of technical information from the Resiliency Study or otherwise. In the meantime, we will collect that inventory for production as it appears responsive to your RFP 40. The NSI contains restricted data and will be marked as confidential under the Protective Order.

Kris

Kristine S. Tardiff  
U.S. Dept. of Justice – ENRD  
Natural Resources Section  
Office 603-230-2583  
Cell 603-496-3858

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**From:** Tardiff, Kristine (USANH)  
**Sent:** Monday, March 15, 2021 7:28 PM  
**To:** 'Charles Irvine' <charles@irvineconner.com>  
**Cc:** Duncan, Laura (ENRD) <LDuncan@ENRD.USDOJ.GOV>; Morris, Frances (ENRD) <FMorris@ENRD.USDOJ.GOV>; Daniel H. Charest <dcharest@burnscharest.com>; Armi Easterby <aeasterby@whlaw.com>; Larry Vincent <lvincent@burnscharest.com>; Vuk Vujasinovic <vuk@vbattorneys.com>; Andrew Bynum <abynum@burnscharest.com>; Kristin Hummel <khummel@whlaw.com>; Job Tenant <job@vbattorneys.com>; Patti Artavia (patti@vbattorneys.com) <patti@vbattorneys.com>; Formanek, Anne (ENRD) <AFormanek@ENRD.USDOJ.GOV>  
**Subject:** RE: Redactions in production of BBTRS documents

Charles – Attached please find a letter response to this inquiry.

Kris

Kristine S. Tardiff  
U.S. Dept. of Justice – ENRD  
Natural Resources Section  
Office 603-230-2583  
Cell 603-496-3858

---

**From:** Charles Irvine <[charles@irvineconner.com](mailto:charles@irvineconner.com)>  
**Sent:** Monday, March 15, 2021 9:50 AM  
**To:** Tardiff, Kristine (USANH) <[KTardiff@usa.doj.gov](mailto:KTardiff@usa.doj.gov)>  
**Cc:** Duncan, Laura (ENRD) <[LDuncan@ENRD.USDOJ.GOV](mailto:LDuncan@ENRD.USDOJ.GOV)>; Morris, Frances (ENRD) <[FMorris@ENRD.USDOJ.GOV](mailto:FMorris@ENRD.USDOJ.GOV)>; Daniel H. Charest <[dcharest@burnscharest.com](mailto:dcharest@burnscharest.com)>; Armi Easterby <[aeasterby@whlaw.com](mailto:aeasterby@whlaw.com)>; Larry Vincent <[lvincent@burnscharest.com](mailto:lvincent@burnscharest.com)>; Vuk Vujasinovic <[vuk@vbattorneys.com](mailto:vuk@vbattorneys.com)>; Andrew Bynum <[abynum@burnscharest.com](mailto:abynum@burnscharest.com)>; Kristin Hummel <[khummel@whlaw.com](mailto:khummel@whlaw.com)>; Job Tenant <[job@vbattorneys.com](mailto:job@vbattorneys.com)>; Patti Artavia <[patti@vbattorneys.com](mailto:patti@vbattorneys.com)>; Formanek, Anne (ENRD) <[AFormanek@ENRD.USDOJ.GOV](mailto:AFormanek@ENRD.USDOJ.GOV)>  
**Subject:** Re: Redactions in production of BBTRS documents

Respectfully Kris, your explanation makes no sense at all.

In the Interim Report, the Corps publicly determined that the pool inundation of upstream properties due to the normal operations of Addicks and Barker "pose unacceptable risks to health and human safety, private property, and public infrastructure." As we understand it, an "unacceptable risk" is a Corps-defined term pursuant to ER-1110-2-1156, and is determined by using a model like LifeSim to calculate the probability of life loss. ER-1110-2-1156 is a dam safety regulation, but it is also an evaluation of the non-failure risk of induced flooding, property damage, and life loss.

The Corps produced its LifeSim model during the liability phase. We have reviewed that prior LifeSim model and it includes flood damage estimates, risk of flooding, depths, and upstream inundation maps and datasets. We believe that the BBTRS LifeSim will use the updated BBTRS hydrology to simulate the depth, duration, mapping, and extent of pool inundation. LifeSim will use an updated structure inventory (much like HEC-FDA) to estimate life loss risk at the six test properties.

The Court ordered the Corps to produce all documents relating to "(1) updated ... flood damage estimates of the upstream area; ... (4) updated project analysis and data relating to the risk of flooding; (5) updated upstream inundation maps and datasets" ECF No. 311 at 3-4. The Life-Sim model clearly relates to all three categories for which the Court compelled the Corps to produce documents and data.

These documents are also highly relevant during this compensation phase. The Corps has determined and publicly written that the upstream test properties are subject to "unacceptable risks to health and human safety, private property, and public infrastructure" due to the normal operations of A&B, and by extension, the Corps' use of its flowage easement. This determination is very obviously relevant to any market participant deciding on the fair market value of an upstream property.

Finally, there is no serious argument that our RFP's did not seek this information (especially considering that the Corps earlier produced them responding to the liability phase RFPs). For example, and I have underlined the important bits to assist you, RFP # 61 asked for:

61. Produce all documents and ESI concerning or comprising hydrologic, hydraulic or geological data and analyses (t:e., flood frequency, duration, erosion, contour maps, flood routing models, and other engineering data) concerning the extent, timing, or duration of future, predicted, or modeled Natural Condition Flooding of the Upstream Properties. This request includes, but is not limited to, preliminary or final analyses or investigations of future, predicted, or modeled Backwater Profiles or Water Surface Profiles concerning the Addicks and Barker Reservoirs. The period for this request is between August 25, 2017, and the present time.

Nine months ago the Court ordered the Corps to produce these documents and data without exception (only subject to the deliberative process privilege, which did not include the LifeSim model). Therefore please immediately produce the LifeSim model and data, as they are currently kept by the Corps, and without any alterations, deletions, degradations, redactions, or deliberate spoliation.

Tomorrow we will seek the Court's intervention on this.

c.

**Charles Irvine | Irvine & Conner, PLLC**  
4709 Austin Street, Houston, TX 77004  
713.533.1704  
[charles@irvineconner.com](mailto:charles@irvineconner.com)

On Mar 10, 2021, at 4:13 PM, Tardiff, Kristine (USANH) <[Kristine.Tardiff@usdoj.gov](mailto:Kristine.Tardiff@usdoj.gov)> wrote:

Hi Charles,

The LifeSim modeling was developed for the dam safety portion of the study and is focused on determining life loss under dam safety or dam failure scenarios. We reviewed the RFPs you identified and confirmed the LifeSim modeling is not responsive to those requests as made or under the Court's discovery ruling of June 29, 2020, ECF

No. 311.

Kris

Kristine S. Tardiff  
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**From:** Charles Irvine <[charles@irvineconner.com](mailto:charles@irvineconner.com)>  
**Sent:** Tuesday, March 9, 2021 2:27 PM  
**To:** Tardiff, Kristine (USANH) <[KTardiff@usa.doj.gov](mailto:KTardiff@usa.doj.gov)>; Duncan, Laura (ENRD) <[LDuncan@ENRD.USDOJ.GOV](mailto:LDuncan@ENRD.USDOJ.GOV)>; Morris, Frances (ENRD) <[FMorris@ENRD.USDOJ.GOV](mailto:FMorris@ENRD.USDOJ.GOV)>  
**Cc:** Daniel H. Charest <[dcharest@burnscharest.com](mailto:dcharest@burnscharest.com)>; Armi Easterby <[aeasterby@whlaw.com](mailto:aeasterby@whlaw.com)>; Larry Vincent <[lvincent@burnscharest.com](mailto:lvincent@burnscharest.com)>; Vuk Vujasinovic <[yuk@vbattorneys.com](mailto:yuk@vbattorneys.com)>; Andrew Bynum <[abynum@burnscharest.com](mailto:abynum@burnscharest.com)>; Kristin Hummel <[khummel@whlaw.com](mailto:khummel@whlaw.com)>; Job Tenant <[job@vbattorneys.com](mailto:job@vbattorneys.com)>; Patti Artavia ([patti@vbattorneys.com](mailto:patti@vbattorneys.com)) <[patti@vbattorneys.com](mailto:patti@vbattorneys.com)>; Formanek, Anne (ENRD) <[AFormanek@ENRD.USDOJ.GOV](mailto:AFormanek@ENRD.USDOJ.GOV)>  
**Subject:** Re: Redactions in production of BBTRS documents

Kris,

Appendix A.1, Figures 14, 16 & 17 (USACEII01927013, USACEII01927015 & USACEII01927016) identify that the Corps used its Life-Sim model for the BBTRS, but I have been unable to locate this in the production. If I am mistaken, please point me to the bates numbers where I can find the Life-Sim files.

We believe that this model is responsive to RFPs #38, 58, & 61, among others. Please provide all the Life-Sim model runs in their native file format and file structure including the alternatives, and without deletion or degradation of the models.

c.

**Charles Irvine | Irvine & Conner, PLLC**  
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713.533.1704  
[charles@irvineconner.com](mailto:charles@irvineconner.com)

<image001.png>

# Exhibit D

United States' Letter to Plaintiffs' Counsel  
Responding to Plaintiffs' Email Concerning  
LifeSim Modeling Data (March 15, 2021)



**U.S. Department of Justice**  
Environment and Natural Resources Division

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**Natural Resources Section**  
**53 Pleasant Street, 4<sup>th</sup> Floor**  
**Concord, NH 03301**

**Telephone (603)-230-2583**  
**[kristine.tardiff@usdoj.gov](mailto:kristine.tardiff@usdoj.gov)**

March 15, 2021

**VIA E-MAIL**

Daniel Charest (dcharest@burnscharest.com)  
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*Plaintiffs' Co-Lead Counsel*

**Re:** *In re Upstream Addicks and Barker (Texas) Flood-Control Reservoirs v. United States*, No. 1:17-cv-9001 (Fed. Cl.) – Fact Discovery

Dear Counsel:

We are responding to Mr. Irvine's e-mail request on March 9, 2021, for the LifeSim modeling from the Buffalo Bayou and Tributaries Resiliency Study and subsequent correspondence.

Beyond the initial disclosure requirements of RCFC 26(a)(1), discovery in this case is driven by the parties' discovery requests. LifeSim modeling conducted for the Resiliency Study falls outside the scope of Plaintiffs' written discovery requests. The Court's rulings relating to previous disputes regarding Plaintiffs' requests did not expand the clear limits of the discovery requests served by Plaintiffs.

For background, we are aware that LifeSim modeling has the capability of estimating property damages. But the Corps' use of LifeSim modeling in the Resiliency Study was focused on estimating life loss under dam safety or dam failure scenarios as part of the dam safety portion of the study, not estimating property damages from flood risk management alternatives. LifeSim modeling has only been certified for use in USACE planning studies for life loss estimates, not economic damages.<sup>1</sup> The Corps used HEC-FDA in the Resiliency Study to assess

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<sup>1</sup> See HEC-LifeSim, Life Loss Estimation Software, Version 1.01, Model Certification (Life Loss Estimation Only) at 2, available at [https://www.hec.usace.army.mil/software/hec-lifesim/documentation/HEC-LifeSim\\_1.01\\_FRM-PCX\\_CertificationMemo.pdf](https://www.hec.usace.army.mil/software/hec-lifesim/documentation/HEC-LifeSim_1.01_FRM-PCX_CertificationMemo.pdf).

economic damages, as HEC-FDA is the preferred and certified model for estimating economic damages in USACE planning studies. We have already produced to you the preliminary HEC-FDA modeling from the Resiliency Study. *See, e.g.*, USACEII01926308 - USACEII01926308.

RFP 38 is limited, among other ways, to assessments of damages to Upstream Properties in late August and early September 2017.<sup>2</sup> The LifeSim modeling conducted during the Resiliency Study did not analyze any scenarios for this time frame, and it is therefore not responsive to this RFP. We also confirmed that the Life-Sim modeling did not run a model scenario using Harvey flood pools, or run scenarios using the flood risk management alternatives being analyzed in the Resiliency Study.

Plaintiffs' requests in RFPs 58 and 61 are limited to hydrologic, hydraulic or geological data about flooding on Upstream properties.<sup>3</sup> We have already produced extensive information responsive to this RFP, like the preliminary H&H data and analysis being developed for the Resiliency Study. LifeSim modeling itself does not fall in the category of hydrologic, hydraulic or geologic data—its purpose is to estimate life loss. LifeSim modeling certainly uses such data as inputs, like H&H information and structure inventories, but that responsive input data has already been produced to you.

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<sup>2</sup> Pls.' RFP 38 (emphasis added):

Produce all documents and ESI concerning flood damage estimates, flood damage quantifications, flood damage descriptions, or other items concerning the extent or amount of repairs or remediation associated with the flooding of Upstream Properties in late August and early September 2017.

<sup>3</sup> RFP 58 (emphasis added):

Produce all documents and ESI concerning or comprising hydrologic, hydraulic or geological data and analyses (*i.e.*, flood frequency, duration, erosion, contour maps, flood routing models, and other engineering data) concerning the extent, timing, or duration of historical Government -Induced Flooding of the Upstream Properties. This request includes, but is not limited to, preliminary or final analyses or investigations of historical Backwater Profiles or historical Water Surface Profiles concerning the Addicks and Barker Reservoirs. The period for this request is between August 25, 2017, and the present time.

RFP 61 (emphasis added):

Produce all documents and ESI concerning or comprising hydrologic, hydraulic or geological data and analyses (*i.e.*, flood frequency, duration, erosion, contour maps, flood routing models, and other engineering data) concerning the extent, timing, or duration of future, predicted, or modeled Natural Condition Flooding of the Upstream Properties. This request includes, but is not limited to, preliminary or final analyses or investigations of future, predicted, or modeled Backwater Profiles or Water Surface Profiles concerning the Addicks and Barker Reservoirs. The period for this request is between August 25, 2017, and the present time.

For all of these reasons, the LifeSim modeling from the Resiliency Study that you requested via email on March 9, 2021, is not responsive to Plaintiffs' discovery requests. For that reason, we did not collect it and produce it in response to Plaintiffs' requests for production, and we have no obligation to produce it now. Moreover, relevancy is an overarching factor in the discovery process and we note that the LifeSim model, as used in connection with the Resiliency Study, is not relevant to any issue in the just compensation phase of this case.

Please let us know if you have any questions

Sincerely,

/s/ Kristine S. Tardiff  
Kristine S. Tardiff  
Senior Trial Attorney  
Environment & Natural Resources Division  
U.S. Department of Justice

# Exhibit E

USACE HEC-LifeSim Model Certification for  
Life Loss Estimation Only



**DEPARTMENT OF THE ARMY**  
SOUTH PACIFIC DIVISION, U.S. ARMY CORPS OF ENGINEERS  
Phillip Burton Federal Building  
Post Office Box 36023  
450 Golden Gate Avenue  
SAN FRANCISCO, CALIFORNIA 94102

CESPD-PDP (FRM-PCX)

27 September 2019

**MEMORANDUM FOR SEE DISTRIBUTION**

**SUBJECT:** HEC-LifeSim, Life Loss Estimation Software, Version 1.01, Model Certification (Life Loss Estimation Only)

1. References:
  - a. Engineer Circular (EC) 1105-2-412, Assuring Quality of Planning Models, 31 March 2011
  - b. Planning Bulletin (PB) 2013-03, Assuring Quality of Planning Models (EC 1104-2-412), 31 March 2013
  - c. Memorandum, CECW-P, 11 May 2018, subject: Delegation of Model Certification
  - d. Model Review Report, HEC-LifeSim version 1.01, 26 September 2019
  - e. Memorandum for Record, CESPD-SPD (FRM-PCX), 26 September 2019, subject: Hydrologic Engineering Center Life Loss Estimation Tool (HEC-LifeSim) Certification Review Summary
2. The Flood Risk Management Planning Center of Expertise (FRM-PCX), in accordance with references 1.a and 1.c, has completed the certification process for the Hydrologic Engineering Center Life Loss Estimation (HEC-LifeSim) software version 1.01 for national use in planning studies for life loss estimation. The HEC-LifeSim software and supporting documentation are available on the HEC website: <https://www.hec.usace.army.mil/software/hec-lifesim/>.
3. The HEC-LifeSim software is a spatially-distributed dynamic simulation modeling system for estimating potential life loss from floods, as well as direct economic damages. HEC-LifeSim has been used extensively and successfully in the USACE Dam and Levee Safety Programs to inform program priorities and investment decisions. It is considered the state-of-the-art corporate tool for estimating life loss and has undergone significant technical reviews during development and implementation, as well as extensive informal reviews through real-world application of the model. The use of HEC-LifeSim to estimate life loss in USACE planning studies is anticipated to be consistent with its historic use in the Dam and Levee Safety Programs.

CESPD-PDP (FRM-PCX)

SUBJECT: HEC-LifeSim, Life Loss Estimation Software, Version 1.01, Model Certification (Life Loss Estimation Only)

4. The FRM-PCX reviewed the HEC-LifeSim software to assess its technical quality, system quality, and usability in accordance with the certification criteria contained in reference 1.a. Based on the historic use of the software in the Dam and Levee Safety Programs and the FRM-PCX review findings, the HEC-LifeSim software and supporting documentation meets the criteria required for certification.
5. This certification of HEC-LifeSim does not include use of the software to estimate economic damages in USACE planning studies. If it were deemed a worthwhile function to add, additional review would be required to support certification of the software for that purpose. The preferred, certified corporate planning model for estimating economic damages from floods is HEC-Flood Damage Reduction Analysis.
6. Certification of HEC-LifeSim version 1.01 applies to all prior and future application of the software for life loss estimation, subject to appropriate agency technical review (ATR). This certification expires after 7 years (27 September 2026).
7. The point of contact for HEC-LifeSim certification is Mr. Nicholas Applegate, FRM-PCX National Technical Specialist, 916-557-6711.



JOSEPHINE R. AXT, Ph.D.  
Director, Flood Risk Management  
Planning Center of Expertise

DISTRIBUTION:

CHIEF, PLANNING, GREAT LAKES AND OHIO RIVER DIVISION (CELRD)  
CHIEF, PLANNING, MISSISSIPPI VALLEY DIVISION (CEMVD)  
CHIEF, PLANNING, NORTH ATLANTIC DIVISION (CENAD)  
CHIEF, PLANNING, NORTHWESTERN DIVISION (CENWD)  
CHIEF, PLANNING, PACIFIC OCEAN DIVISION (CEPOD)  
CHIEF, PLANNING, SOUTH ATLANTIC DIVISION (CESAD)  
CHIEF, PLANNING, SOUTH PACIFIC DIVISION (CESPD)  
CHIEF, PLANNING, SOUTHWESTERN DIVISION (CESWD)

CF:

REGIONAL ECONOMIST, GREAT LAKES AND OHIO RIVER DIVISION (CELRD)  
REGIONAL ECONOMIST, MISSISSIPPI VALLEY DIVISION (CEMVD)  
REGIONAL ECONOMIST, NORTH ATLANTIC DIVISION (CENAD)  
REGIONAL ECONOMIST, NORTHWESTERN DIVISION (CENWD)  
REGIONAL ECONOMIST, PACIFIC OCEAN DIVISION (CEPOD)  
REGIONAL ECONOMIST, SOUTH ATLANTIC DIVISION (CESAD)  
REGIONAL ECONOMIST, SOUTH PACIFIC DIVISION (CESPD)

CESPD-PDP (FRM-PCX)

SUBJECT: HEC-LifeSim, Life Loss Estimation Software, Version 1.01, Model Certification (Life Loss Estimation Only)

REGIONAL ECONOMIST, SOUTHWESTERN DIVISION (CESWD)

CEIWR-HEC (Dunn, Adams)

CEIWR-RMC-WD (Fields)

CENAD-PD-X (Cocchieri)

CEIWR-GI (Moser)

CECW-PC (Strahan)

CECW-CP (McLean)

# Exhibit F

Excerpts from Buffalo Bayou and Tributaries  
Resiliency Study Interim Report

# **Buffalo Bayou and Tributaries Resiliency Study, Texas**

Review of Completed Projects  
Interim Feasibility Report

October 2020



*Photograph: Record breaking rainfall from Hurricane Harvey in 2017 caused catastrophic flooding in Houston. The above photograph shows a completely submerged Interstate 10 outside of Houston, Texas on August 26<sup>th</sup>, 2017.*



**US Army Corps  
of Engineers®**  
Galveston District

USACEII01926527

**Table 43. Mitigation Acres by Alternative Plan**

Alternative Plans	Mitigation Acres*	Notes
Alt 1: No Action	0	
Alt 2: Cypress Creek Dam	7,523	Reservoir location would be sited over the last remaining Katy Prairie Habitat in Texas. Resource Agency concern over how the spillway would affect flows to habitats inside and outside the reservoir footprint.
Alt 6: Buffalo Bayou Channel Improvements	3,093	Riparian Habitat
Alt 7: Nonstructural	0	
Alt 8: Combination (2 + 6)	7,593	Katy Prairie & Riparian Habitats

\* Mitigation estimates were based upon desktop analyses and not field collected data or model runs. It is also an estimate of area that would be regularly impacted by more frequent events and where habitat would be converted to spillway and associated right-of-way.

#### 4.8.5 Other Social Effects

Table 44 shows what the expected loss of life would be under existing conditions for current loading conditions for the non-fail scenario. Each alternative is compared to the baseline condition at each dam displaying its impact on the loading. For these comparisons, dam safety measures are not in place. At Addicks, life loss can be expected to be 224 during the day and 123 at night under the baseline condition. At Barker, life loss is estimated at 124 during the day and 70 at night. Measures representing the reservoir and the combination alternatives show slightly better performance from a life loss perspective than does the alternative representing the channel improvement. An increment of 35 fewer lives lost during the day and 11 at night at Addicks would be expected for those alternatives that include a reservoir. No increment exists in expected life loss between the alternatives at Barker. While the increment in life loss represents a 61 and 59 percent reduction between day and night respectively, it does come at the additional expense of \$1.2 to \$1.6 billion.

**Table 44. Existing Condition Non-Fail Life Loss Estimates**

Addicks			
Alternative Plans	Loading	Night	Day
Alt 1: No Action	115.4	123	224
Alt 2: Cypress Creek Dam	112.5	11	22
Alt 6: Buffalo Bayou Channel Improvements	113.1	27	57
Alt 8: Alts 2 & 6	112.5	11	22
Barker			
Alternative Plans	Loading	Night	Day
Alt 1: No Action	109.2	70	124
Alt 2: Cypress Creek Dam	107.2	18	25

<b>6: Buffalo Bayou Channel Improvements</b>	107.2	18	25
<b>Alt 8: Alts 2 &amp; 6</b>	107.2	18	25

# Exhibit G

Excerpts from Draft Appendix E (Economics) from the  
Draft Interim Feasibility Report

**To be filed under seal  
upon court order**

# Exhibit H

Excerpts from Draft Appendix H (Dam Safety) from  
the Draft Interim Feasibility Report

**To be filed under seal  
upon court order**

# Exhibit I

Excerpts from Kurt Buchanan's Deposition,  
(September 19, 2018)



Transcript of the Testimony  
of  
**Kurt Buchanan**

**Volume:**

**Date of Transcript:** September 19, 2018

**Case:** In re: Downstream Addicks and Barker (Texas) Flood-Control  
Reservoirs

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7560

Kurt Buchanan

7560

<p style="text-align: right;">Page 85</p> <p>1 A. No, sir, not developing. Other than the review 2 comments. You know, I made comments when I tested the 3 beta version.</p> <p>4 Q. You weren't on any task force or telephone calls 5 talking about why we need to go from 2.2 to 3.0 or what 6 we need to change from 2.2 to 3.0?</p> <p>7 A. Well, when I did beta testing, there were some 8 changes that I recommended. I don't remember 9 specifically what. No -- that would be probably the 10 extent.</p> <p>11 Q. So nothing prior to you doing beta testing and 12 giving them feedback, correct?</p> <p>13 A. No, sir.</p> <p>14 Q. Okay. Can you describe to me what LifeSim is. I 15 have seen some reference to that.</p> <p>16 A. HEC-LifeSim is a newer software that was 17 developed by HEC, the same group that did the FIA 18 development. It's newer than FIA, but it's more geared 19 towards estimating life loss.</p> <p>20 Q. Does it give you any evaluations of warning or 21 evacuation times in order to avoid life loss?</p> <p>22 A. Not exactly. You put the warning -- the warning 23 time is an input to it. And then what LifeSim does, it 24 estimates with a given amount of warning and then it 25 looks at the water arrival time relative to that warning</p>	<p style="text-align: right;">Page 87</p> <p>1 Q. But also local authorities use HEC-RAS and all 2 those other models?</p> <p>3 A. HEC-RAS is used worldwide.</p> <p>4 Q. Worldwide. Do you have any ability to tweak 5 those models when you run them? Not necessarily the 6 inputs, but the parameters underlying how the models 7 function?</p> <p>8 A. There is the ability to change the parameters 9 that are used to estimate the results. There are -- you 10 can customize a lot of the depth damage curves that we 11 use, you know, the depth to percent damage of a 12 structure, those can be customized. Then, of course, 13 you can change the inputs as well.</p> <p>14 Q. Did you customize any of the HEC-FIA models that 15 you used during Hurricane Harvey for the Addicks-Barker 16 analysis?</p> <p>17 A. No, sir. I used the default settings that the 18 program comes with.</p> <p>19 Q. Okay. You testified to Mr. Potts about how you 20 took the hydraulic inputs from the HEC-RAS models, I 21 think you said from Kansas, was it -- Mr. Wyckoff?</p> <p>22 A. Russ Wyckoff is from Tulsa.</p> <p>23 Q. Wyckoff is from Tulsa. Okay. Let me get this 24 straight. So you took his HEC-RAS outputs and his 25 hydraulic analysis and then you can take that into</p>
<p style="text-align: right;">Page 86</p> <p>1 and basically comes up with estimates of likelihoods of 2 whether or not you would get that warning in time, 3 whether or not people would be able to evacuate, how 4 many would evacuate and immobilize.</p> <p>5 Q. Is LifeSim subsumed into HEC-FIA or is that a 6 completely separate piece of software?</p> <p>7 A. They are separate pieces of software, but HEC-FIA 8 used what was called a simplified version of the 9 methodology that HEC-LifeSim was later developed with 10 the full methodology.</p> <p>11 Q. Just to clarify, HEC, we're talking about the 12 Hydraulic Engineering Center, correct?</p> <p>13 A. Yes, sir.</p> <p>14 Q. Where is that located?</p> <p>15 A. Davis, California.</p> <p>16 Q. All of these HEC models, HEC-RAS, HEC-FIA, 17 LifeSim, they're all developed in that center, correct?</p> <p>18 A. Yes, sir.</p> <p>19 Q. In the other offices, MMC, Tulsa, Ft. Worth, 20 Galveston, you don't change any of the underlying basics 21 of that model, how those models function; is that true?</p> <p>22 A. That is true. We tend to have a role in beta 23 testing, as I did on FIA and LifeSim both. We are some 24 of the -- the MMC is one of the primary users of a lot 25 of those models.</p>	<p style="text-align: right;">Page 88</p> <p>1 HEC-FIA and that starts -- that sort of sets the 2 parameters -- the basic parameters for the hydraulics in 3 your analysis? Am I understanding that correct?</p> <p>4 A. Yes, sir.</p> <p>5 Q. I'm not an engineer. If I get something wrong, 6 correct me. All right. Are there any other inputs you 7 used? You testified a little about some of the data 8 sources. But are there any other inputs from other 9 Corps of Engineer departments that you used during your 10 Harvey analysis?</p> <p>11 A. No. The terrain data was also the same terrain 12 data that had been used for the hydraulic analysis in 13 the HEC-RAS model. So that's another input that I bring 14 that same terrain into the HEC-FIA model. The only 15 other inputs to it that were used was the water shed 16 boundaries that I used to aggregate to those areas. 17 That was from a USGS water shed boundary data set. And 18 then the structure inventory data.</p> <p>19 Q. The structure inventory data is the stuff you got 20 from MIT and the City of Houston. We'll talk about that 21 in a second. Let's talk a little about the terrain 22 data. Do you know what the source of that terrain data 23 was?</p> <p>24 A. No, I do not know.</p> <p>25 Q. Do you know what the date of that terrain data</p>

Kurt Buchanan

7560

<p style="text-align: right;">Page 109</p> <p>1 and water arrival times are very tricky to get correct      2 in the model with respect to life loss. The warning      3 times don't have anything to do with the calculation of      4 the damage estimates or number of structures flooded.      5 But in regards to how the model estimates the likelihood      6 that people will have time to leave, there are -- you      7 have to do it kind of specific ways within the model to      8 not get false results.</p> <p>9 Q. So did you run any modeling with your work      10 associated with Harvey about when people in the upstream      11 areas needed to evacuate?</p> <p>12 A. I ran a LifeSim analysis that would have been      13 similar to this several -- I believe it may have been      14 around September 6th. So I did build a LifeSim model at      15 that time and I ran one of the events through it to see      16 what the -- kind of the order of magnitude of life loss      17 results would have been.</p> <p>18 Q. But that's entirely perspective, you would agree?</p> <p>19 A. Can you clarify?</p> <p>20 Q. Well, everyone was already flooded and evacuated      21 on September 6th?</p> <p>22 A. Yes. The reason that I did it was because -- the      23 intent behind it was with our life safety models, we      24 often go back and try and model historic events that had      25 some life loss associated with them to make -- to</p>	<p style="text-align: right;">Page 111</p> <p>1 Do you see that?      2 A. Yes.      3 Q. Did you work on any of the MMC deliverables for      4 Addicks and Barker Dams?      5 A. I did not work on them, no, sir.      6 Q. You see in this list of deliverables -- I mean,      7 first of all, what does it mean for something to be a      8 MMC deliverable? Tell me what that means.      9 A. So it would be the products. It would be the      10 HEC-RAS, the HEC-FIA models themselves. It would be the      11 CTS worksheet, which is an Excel worksheet that has the      12 results. It would be a report based off the data that's      13 in there. It would also be a inundation mapping set.      14 We produce PDF and a printed version of inundation maps.      15 Q. So it's everything that modeling, mapping and      16 consequences does with respect to a particular dam or      17 project?      18 A. Yes, sir.      19 Q. You say you never worked on any of these, but do      20 you see down that list there is consequences, CTS      21 worksheet?      22 A. Yes, sir.      23 Q. Addicks Dam and Barker Dam?      24 A. Yes, sir.      25 Q. A consequence analysis report, do you see that?</p>
<p style="text-align: right;">Page 110</p> <p>1 validate the methods that we use.      2 Q. And to help inform future events, correct?      3 A. Yes, sir.      4 Q. Were you at all consulted -- strike that.      5 I see in the records, or at least the documents      6 produced, a lot of work done by MMC starting around      7 about 2009, going through to about 2014, that involved      8 and concerned Addicks and Barker Dams. I'm going to ask      9 you a couple questions about that. There is, for      10 example, a document I'll mark as Exhibit 175 Upstream.      11 It's USACE070312.      12 (Upstream Exhibit Number 175 was marked for      13 identification purposes.)      14 MR. DAIN: And Exhibit 20.      15 (Exhibit Number 20 was marked for      16 identification purposes.)      17 Q. Did you see that document?      18 A. Yes, sir.      19 Q. Have you ever seen that document before?      20 A. Not to my knowledge, no.      21 Q. But you see -- you would agree with me that it's      22 dated January 10th, 2014?      23 A. Yes, sir.      24 Q. It's called -- the title is "Subject MMC Project      25 Closeout, MMC Deliverables for Addicks and Barker Dams."</p>	<p style="text-align: right;">Page 112</p> <p>1 You're familiar with that kind of document?      2 A. Yes, sir.      3 Q. Have you ever seen those documents for Addicks      4 Dam and Barker Dam?      5 A. I may have seen them. I don't recall -- I did      6 not do -- I didn't do the work to produce them.      7 Q. Then you said there was also inundation mapping?      8 A. Yes.      9 Q. Is the inundation mapping only related to dam      10 failure or to other causes?      11 MR. DAIN: Objection, foundation.      12 A. Typically, it's only the failures. I think they      13 do have a -- sometimes they have -- we have produced      14 no-fail scenarios for the top of dams, usually.      15 Q. Isn't it true that those deliverables, inundation      16 mapping are usually called dam failure inundation maps?      17 A. Yes.      18 Q. Okay. D-FIMs?      19 A. Yes.      20 MR. IRVINE: I'm going to mark Upstream      21 Exhibit 176.      22 (Upstream Exhibit Number 176 was marked      23 for identification purposes.)      24 (Exhibit Number 21 was marked for      25 identification purposes.)</p>